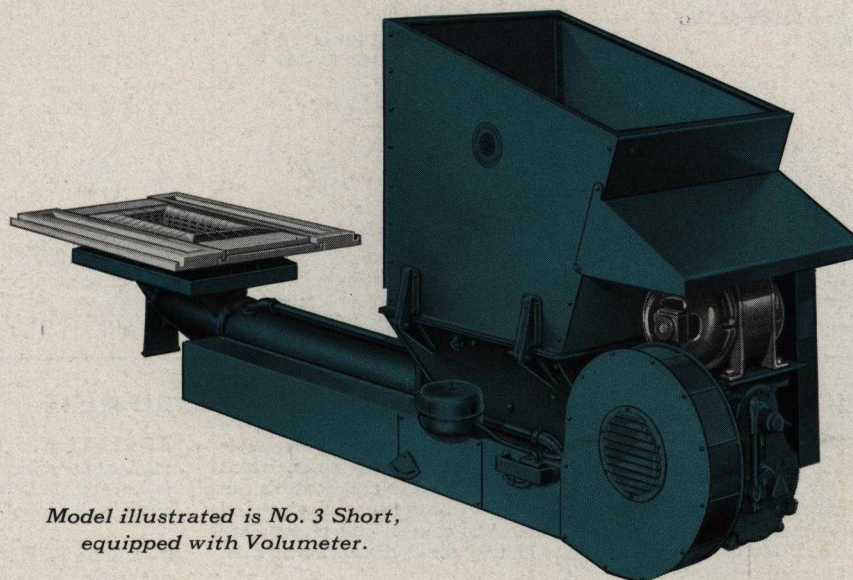




IRON FIREMAN

SERIES 31 STANDARD HOPPER MODELS



*Model illustrated is No. 3 Short,
equipped with Volumeter.*

SERIES 31 underfeed stokers are designed for use in high or low pressure steam boilers, hot water boilers, and industrial applications. They are made in three sizes, and each size is available in two standard lengths.

These stokers are also available, on special factory order, in extended lengths

for use either as hopper models or as bunker models.

A metering type worm conveys the coal to the firebox in a loose, unpacked condition so that air can easily penetrate the entire fuel bed.

Air required for combustion is supplied by a quiet fan, and is regulated by an adjustable damper. The Volumeter is also

available on this series for automatic air volume regulation.

These models are normally equipped with heavy, ribbed, stationary grates; but can be supplied with step grates or with dump grates.

Iron Fireman controls regulate the stoker to meet steam, hot water, or other load requirements.

SPECIFICATIONS

HOPPER . . . 750 pound capacity . . . open type . . . 11-gauge steel . . . baffle protects hopper against radiant heat . . . hopper hinged to base . . . can be swung to either side or entirely removed . . . can also be positioned for easy filling from front, back, or either side.

HOPPER BASE . . . made of $\frac{1}{4}$ -inch steel plate . . . equipped with cleanout, coal baffle, and combination wearing plate and spike guide.

COAL WORM . . . metering type . . . cold-drawn steel flights, $\frac{7}{8}$ -inch thick in hopper section and $\frac{1}{2}$ -inch thick in worm housing . . . flights electrically welded to solid steel core . . . sectional type worms and worm housings used on No. 2 Long, No. 3 Long, No. 4 Short, and No. 4 Long stokers.

WORM HOUSING CLEANOUT . . . permits removal of foreign objects without emptying hopper . . . special guide plate directs foreign material to the easily removable cover.

FAN . . . radial vane type . . . quiet . . .

accurately balanced . . . two fan speeds . . . ample capacity for all coals . . . high efficiency gives low power consumption.

AIR REGULATION (standard) . . . adjustable damper . . . also banking damper for "off" periods.

AIR REGULATION (optional) . . . Volumeter . . . automatically maintains correct volume of air for efficient combustion when adjusted to coal and burning rate . . . simple, positive, pneumatic operation . . . dash-pot action gives delayed damper opening . . . damper closes during "off" period and banks fire.

RETORT . . . one-piece construction on No. 2 and No. 3 stokers . . . sectional construction on No. 4 stoker.

TUYERES . . . removable, sectional tuyeres . . . Venturi type, self-cleaning air openings . . . accurately sized and proportioned for various coals and burning rate of each model.

GRATES . . . stationary type . . . air-cooled . . . heavy, ribbed design increases cooling surface and prolongs life.

TRANSMISSION . . . continuous feed type . . . totally enclosed . . . worm and spur gear reduction . . . bronze worm gear . . . drop-forged gears, heat treated and tested for hardness . . . all parts accurately machined . . . ball bearings used on high speed shafts . . . three speeds provide $\frac{1}{8}$, $\frac{2}{8}$, and full-rated coal feed capacity . . . gears can be shifted while stoker is in operation.

DRIVE . . . flexible V-belt . . . dual sheaves provide two fan speeds, and in conjunction with three-speed transmission, give six coal feeding rates . . . heavy steel guards adequately protect motor and belts.

OVERLOAD PROTECTION . . . straight shear pin . . . easily replaced . . . gives positive, fool-proof protection.

AIR INJECTOR . . . supplies high pressure air to coal worm housing.

MOTOR . . . mounted on resilient base . . . the standard motors are:
No. 2 Stoker—repulsion-induction type.
No. 3 Stoker—squirrel cage, induction type.
No. 4 Stoker—squirrel cage, induction type.

30-G-3

SERIES 31 STANDARD HOPPER MODELS

SPECIFICATIONS

	No. 2	No. 3	No. 4
Catalog Number			
Short Model	3121	3131	3141
Long Model	3122	3132	3142
Maximum Coal Feed, in pounds per hour*			
With low fan speed	140 to 175	200 to 240	250 to 325
With high fan speed	160 to 200	220 to 265	300 to 375
Motor Size	$\frac{3}{4}$ H. P.	1 H. P.	2 H. P.
Approximate Shipping Weight**			
Short Model	1220	1280	1460
Long Model	1280	1340	1510
Railroad Classification	3rd	3rd	3rd

*Varies with density of coal. Minimum rate shown is based on coal weighing 44 pounds per cu. ft., maximum on 54 pounds per cu. ft. Low and intermediate transmission speeds give $\frac{1}{3}$ and $\frac{2}{3}$ of coal feeding capacity.

**Complete with tuyeres, motor, and standard controls; but without grates, boiler front, fire-doors, or other extras.

STANDARD EQUIPMENT

CONTROLS . . . The controls included with each burner are:

No. 2 Stoker:

One—Limit Control, high voltage type
Note:—Magnetic Starting Switch (extra equipment) required with polyphase or direct current motor.

No. 3 and No. 4 Stoker:

One—Limit Control, high voltage type.
 One—Magnetic Starting Switch, 220 or 440 volt, 60 cycle, 3-phase.

MOTOR . . . The standard motors are:

No. 2 Stoker—1725 r.p.m., 110 or 220 volt, 60 cycle, single phase.

No. 3 Stoker—1725 r.p.m., 220 or 440 volt, 60 cycle, three phase.

No. 4 Stoker—1725 r.p.m., 220 or 440 volt, 60 cycle, three phase.

GRATES . . . Any setting, as listed in table, up to and including the following sizes:

No. 2 Stoker—37 $\frac{1}{4}$ in. long x 33 in. wide

No. 3 Stoker—40 $\frac{1}{4}$ in. long x 33 in. wide

No. 4 Stoker—52 $\frac{1}{2}$ in. long x 46 $\frac{1}{2}$ in. wide (extra charge for larger settings)

TUYERES . . . Type P-25 or type F-40 are included with these models. Other types are listed under Extra Equipment. Specify type required.

EXTRA EQUIPMENT

CONTROLS . . . Controls are available for almost any type of regulation which may be required. Motors and controls can be furnished for most types of electrical current. Refer to control and motor data sheets or factory for further information.

OPTIONAL HOPPERS . . . A closed type, 750-pound hopper, or an open type, 1200-pound hopper can be supplied instead of the standard hopper.

Hopper can be mounted on base for filling from either right or left hand side, or from the rear, at slight additional charge, if specified when order is placed with factory.

BUNKER ADAPTOR . . . To equip these models for bunker feed installations, a bunker adaptor and cut-off gate can be supplied in place of the hopper.

EXTENDED LENGTHS . . . Extended length stokers can be supplied on special factory order. The available lengths range from a minimum of 3 feet to a maximum of 20 feet, in one foot increments. These lengths are added to the length of the No. 2 Long, No. 3 Long, and No. 4 Short Stokers.

AGITATOR . . . Should be used on all installations, except where a dry, sized coal is burned. **MUST** be used with damp or slack coal.

VOLUMETER . . . Must be specified if desired.

TUYERES . . . Type "AD" or type "ADF" tuyeres can be used on these models. Refer to table for proper grates.

STEP GRATES . . . Refer to table for available settings.

DUMP GRATES . . . Available on No. 3 Long, No. 4 Short, and No. 4 Long Stokers. Refer to table for available settings.

SHEAR PIN ALARM . . . Automatically stops stoker and rings alarm bell if pin shears.

AUXILIARY EQUIPMENT . . . Low water cut-offs, indirect water heaters, boiler fronts, fire-doors, firing tools, and other equipment available for shipment with the stoker.

CAPACITY TABLE

LOAD ON BOILER				REQUIRED POUNDS OF COAL PER HOUR															
E. D. R. Steam	E. D. R. Hot Water	Boiler H.P.	B.T.U. Per Hour	B.T.U. VALUE OF COAL — "AS FIRED" BASIS															
				7000	7500	8000	8500	9000	9500	10000	10500	11000	11500	12000	12500	13000	13500	14000	14500
3,000	4,800	21.5	720,000	147	138	129	121	114	109	103	98	94	89	86	83	79	76	73	71
4,000	6,400	28.7	960,000	196	183	172	162	153	145	138	131	125	119	114	110	106	102	98	95
5,000	8,000	35.8	1,200,000	245	228	215	202	190	181	172	163	156	150	143	138	132	127	123	118
6,000	9,600	43.0	1,440,000	294	275	258	243	228	217	206	196	188	179	172	165	158	152	147	142
7,000	11,200	50.2	1,680,000	344	320	300	284	267	254	240	229	218	209	200	192	185	178	172	165
8,000	12,800	57.3	1,920,000	392	366	344	324	306	290	275	262	249	239	228	219	212	203	196	189
9,000	14,400	64.5	2,160,000	442	413	386	364	344	325	310	294	280	269	258	247	238	228	221	212
10,000	16,000	71.7	2,400,000	490	457	429	405	381	362	344	327	312	299	286	275	264	254	245	236
11,000	17,600	78.8	2,640,000	539	502	472	445	420	397	378	360	343	329	314	302	291	280	269	260
12,000	19,200	86.0	2,880,000	588	548	515	486	457	434	413	392	374	359	344	330	317	305	294	283
13,000	20,800	93.2	3,120,000	637	593	557	526	495	470	447	425	406	389	372	358	344	330	319	307
14,000	22,400	100.0	3,360,000	686	639	600	567	533	506	481	458	437	419	400	385	370	356	343	331

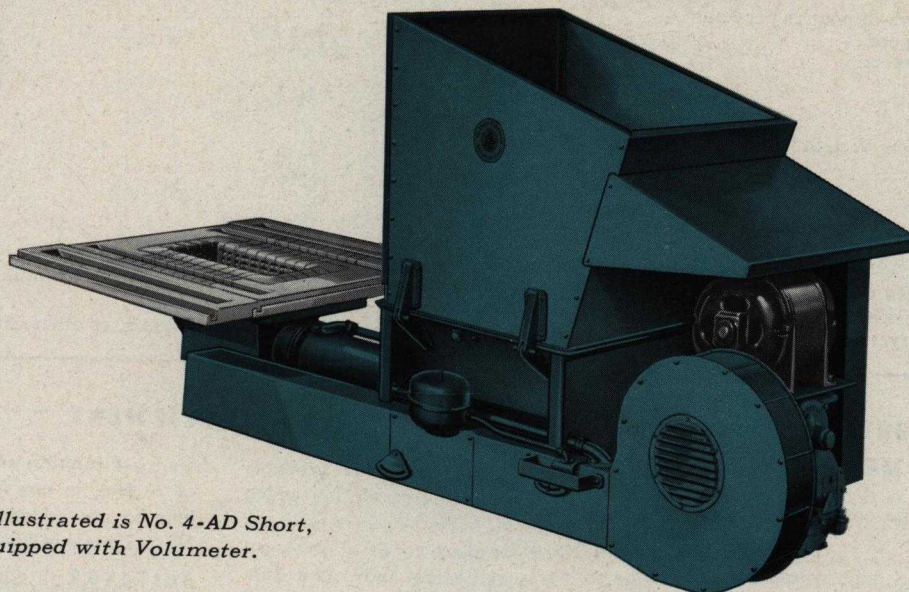
Capacities are based on an arbitrary, over-all stoker and boiler efficiency of 70%. Should boilers be encountered which will not develop this efficiency, corresponding increases in required coal feed must be made.

CAUTION: Do not confuse E.D.R. Ratings (equivalent direct radiation) with "Standing" or "Direct Radiation."



IRON FIREMAN

SERIES 32 POWERAM HOPPER MODELS



*Model illustrated is No. 4-AD Short,
equipped with Volumeter.*

SERIES 32 underfeed stokers are designed for use in high or low pressure steam boilers, hot water boilers, and industrial applications. They are made in two sizes, and each size is available in two standard lengths.

These stokers are also available, on special factory order, in extended lengths

for use either as hopper models or as bunker models.

Coal is delivered to the retort in a loose, unpacked condition by a metering type worm, and is evenly distributed over the grates by a reciprocating ram.

Air required for combustion is supplied by a quiet fan, and is regulated by an adjustable damper. The Volumeter is also

available on this series for automatic air volume regulation.

These models are normally equipped with heavy, ribbed, stationary grates; but can be supplied with dump grates.

Iron Fireman controls regulate the stoker to meet steam, hot water, or other load requirements.

SPECIFICATIONS

HOPPER . . . 750 pound capacity . . . open type . . . 11-gauge steel . . . baffle protects hopper against radiant heat . . . hopper hinged to base . . . can be swung to either side or entirely removed . . . can also be positioned for easy filling from front, back, or either side.

HOPPER BASE . . . made of $\frac{1}{4}$ -inch steel plate . . . equipped with cleanout, coal baffle, and combination wearing plate and spike guide.

COAL WORM . . . metering type . . . cold-drawn steel flights, $\frac{7}{8}$ -inch thick in hopper section and $\frac{1}{2}$ -inch thick in worm housing . . . flights electrically welded to solid steel core . . . sectional type worms and worm housings used on No. 3-AD Long, No. 4-AD Short, and No. 4-AD Long stokers.

WORM HOUSING CLEANOUT . . . permits removal of foreign objects without emptying hopper . . . special guide plate directs foreign material to the easily removable cover.

FAN . . . radial vane type . . . quiet . . . accurately balanced . . . two fan speeds . . . ample capacity for all coals . . . high

efficiency gives low power consumption.

AIR REGULATION (standard) . . . adjustable damper . . . also banking damper for "off" periods.

AIR REGULATION (optional) . . . Volumeter . . . automatically maintains correct volume of air for efficient combustion when adjusted to coal and burning rate . . . simple, positive, pneumatic operation . . . dash-pot action gives delayed damper opening . . . damper closes during "off" period and banks fire.

RETORT . . . one-piece construction on No. 3 AD stoker . . . sectional construction on No. 4-AD stoker.

COAL DISTRIBUTOR . . . reciprocating, wedge-shaped block in bottom of retort.

TUYERES . . . removable, sectional tuyeres . . . Venturi type, self-cleaning air openings . . . accurately sized and proportioned for various coals and burning rate of each model.

GRATES . . . stationary type . . . air-cooled . . . heavy, ribbed design increases cooling surface and prolongs life.

TRANSMISSION . . . continuous feed type . . . totally enclosed . . . worm and spur gear reduction . . . bronze worm gear . . . drop forged gears, heat treated and tested for hardness . . . all parts accurately machined . . . ball bearings used on high speed shafts . . . three speeds provide $\frac{1}{3}$, $\frac{2}{3}$, and full rated coal feed capacity . . . gears can be shifted while stoker is in operation.

DISTRIBUTOR TRANSMISSION . . . operates reciprocating ram . . . bronze worm gear reduction . . . protected by separate shear pin.

DRIVE . . . flexible V-belt . . . dual sheaves provide two fan speeds, and in conjunction with three-speed transmission, gives six coal feeding rates . . . heavy steel guards adequately protect motor and belts.

OVERLOAD PROTECTION . . . straight shear pin . . . easily replaced . . . gives positive, fool-proof protection.

AIR INJECTOR . . . supplies high pressure air to coal worm housing.

MOTOR . . . mounted on resilient base . . . squirrel cage, induction type.

IRON FIREMAN MANUFACTURING COMPANY

30-5-3

SERIES 32 POWERAM HOPPER MODELS

SPECIFICATIONS

	No. 3-AD	No. 4-AD
Catalog Number		
Short Model	3231	3241
Long Model	3232	3242
Maximum Coal Feed, in pounds per hour*		
With low fan speed	200 to 240	250 to 325
With high fan speed	220 to 265	300 to 375
Motor Size	1 H. P.	2 H. P.
Approximate Shipping Weight**		
Short Model	1630	1780
Long Model	1700	1800
Railroad Classification	3rd	3rd

*Varies with density of coal. Minimum rate shown is based on coal weighing 44 pounds per cu. ft., maximum on 54 pounds per cu. ft. Low and intermediate transmission speeds give $\frac{1}{2}$ and $\frac{2}{3}$ coal feeding capacity.

**Complete with tuyeres, motor, and standard controls; but without grates, boiler front, fire-doors, or other extras.

STANDARD EQUIPMENT

CONTROLS . . . The controls included with each burner are:

- One—Limit Control, high voltage type.
- One—Magnetic Starting Switch, 220 or 440 volt, 60 cycle, 3-phase.

MOTOR . . . 1725 r.p.m., 220 or 440 volt, 60 cycle, 3-phase.

GRATES . . . Any setting, as listed in table, up to and including the following sizes:

No. 3-AD Stoker:
40½ in. long x 41¾ in. wide

No. 4-AD Stoker:
50½ in. long x 41¾ in. wide

(Extra charge for larger settings)

TUYERES . . . Type "AD" or type "ADF" tuyeres are included. Specify type required.

EXTRA EQUIPMENT

CONTROLS . . . Controls are available for almost any type of regulation which may be required. Motors and controls can be furnished for most types of electrical current. Refer to control and motor data sheets or factory for further information.

OPTIONAL HOPPERS . . . A closed type, 750-pound hopper; or an open type, 1200-pound hopper can be supplied instead of the standard hopper.

Hopper can be mounted on base for filling from either right or left hand side, or from the rear, at slight additional charge, if specified when order is placed with factory.

BUNKER ADAPTOR . . . To equip these models for bunker feed installations, a bunker adaptor and cut-off gate can be supplied in place of the hopper.

EXTENDED LENGTHS . . . Extended length stokers can be supplied on special factory order. The available lengths range

from a minimum of 3 feet to a maximum of 20 feet, in one foot increments. These lengths are added to the length of the No. 3 Long and No. 4 Short stokers.

AGITATOR . . . Should be used on all installations, except where a dry, sized coal is burned. MUST be used with damp or slack coal.

VOLUMETER . . . Must be specified if desired.

DUMP GRATES . . . Available on all stoker sizes except No. 3-AD Short. Refer to table for available settings.

SHEAR PIN ALARM . . . Automatically stops stoker and rings alarm bell if pin shears.

AUXILIARY EQUIPMENT . . . Low water cut-offs, indirect water heaters, boiler fronts, fire-doors, firing tools, and other equipment available for shipment with the stoker.

CAPACITY TABLE

LOAD ON BOILER				REQUIRED POUNDS OF COAL PER HOUR															
E. D. R. Steam	E. D. R. Hot Water	Boiler H.P.	B.T.U. Per Hour	B.T.U. VALUE OF COAL — "AS FIRED" BASIS															
				7000	7500	8000	8500	9000	9500	10000	10500	11000	11500	12000	12500	13000	13500	14000	14500
3,000	4,800	21.5	720,000	147	138	129	121	114	109	103	98	94	89	86	83	79	76	73	71
4,000	6,400	28.7	960,000	196	183	172	162	153	145	138	131	125	119	114	110	106	102	98	95
5,000	8,000	35.8	1,200,000	245	228	215	202	190	181	172	163	156	150	143	138	132	127	123	118
6,000	9,600	43.0	1,440,000	294	275	258	243	228	217	206	196	188	179	172	165	158	152	147	142
7,000	11,200	50.2	1,680,000	344	320	300	284	267	254	240	229	218	209	200	192	185	178	172	165
8,000	12,800	57.3	1,920,000	392	366	344	324	306	290	275	262	249	239	228	219	212	203	196	189
9,000	14,400	64.5	2,160,000	442	413	386	364	344	325	310	294	280	269	258	247	238	228	221	212
10,000	16,000	71.7	2,400,000	490	457	429	405	381	362	344	327	312	299	286	275	264	254	245	236
11,000	17,600	78.8	2,640,000	539	502	472	445	420	397	378	360	343	329	314	302	291	280	269	260
12,000	19,200	86.0	2,880,000	588	548	515	486	457	434	413	392	374	359	344	330	317	305	294	283
13,000	20,800	93.2	3,120,000	637	593	557	526	495	470	447	425	406	389	372	358	344	330	319	307
14,000	22,400	100.0	3,360,000	686	639	600	567	533	506	481	458	437	419	400	385	370	356	343	331

Capacities are based on an arbitrary, over-all stoker and boiler efficiency of 70%. Should boilers be encountered which will not develop this efficiency, corresponding increases in required coal feed must be made.

CAUTION: Do not confuse E.D.R. Ratings (equivalent direct radiation) with "Standing" or "Direct Radiation."

SERIES 32 POWERAM HOPPER MODELS

STATIONARY GRATES FOR NO. 3-AD

FOR SETTING:		SPECIFY:		SHIPPING WEIGHT
Length	Width	Side Plates	End Plates	4th class
40½ in.	37 in.	Two—S-26	Two—V-3148 (6 in.)	200
40½ in.	41¾ in.	Two—S-3	Two—V-3148 (6 in.)	260
40½ in.	45½ in.	Two—S-12	Two—V-3148 (6 in.)	320
43½ in.	37 in.	Two—S-27	One—V-3148 (6 in.) One—V-3166 (9 in.)	230
43½ in.	41¾ in.	Two—S-4	One—V-3148 (6 in.) One—V-3166 (9 in.)	290
43½ in.	45½ in.	Two—S-13	One—V-3148 (6 in.) One—V-3166 (9 in.)	350
46½ in.	40 in.	Two—D-23MA	Two—V-3166 (9 in.)	310
46½ in.	44 in.	Two—D-24MA	Two—V-3166 (9 in.)	340

STATIONARY GRATES FOR NO. 4-AD ✓

FOR SETTING:		SPECIFY:		SHIPPING WEIGHT
Length	Width	Side Plates	End Plates	4th class
44½ in.	37 in.	Two—S-27	Two—V-3148 (6 in.)	210
44½ in.	41¾ in.	Two—S-4	Two—V-3148 (6 in.)	270
44½ in.	45½ in.	Two—S-13	Two—V-3148 (6 in.)	330
✓ 50½ in.	37 in.	Two—S-28	Two—V-3166 (9 in.)	260
50½ in.	41¾ in.	Two—S-5F Two—S-5M	Two—V-3166 (9 in.)	330
50½ in.	45½ in.	Two—S-14F Two—S-14M	Two—V-3166 (9 in.)	380

DUMP GRATES

The following available settings are designed for use with an 18 inch thick front wall. Other width walls will require special parts.

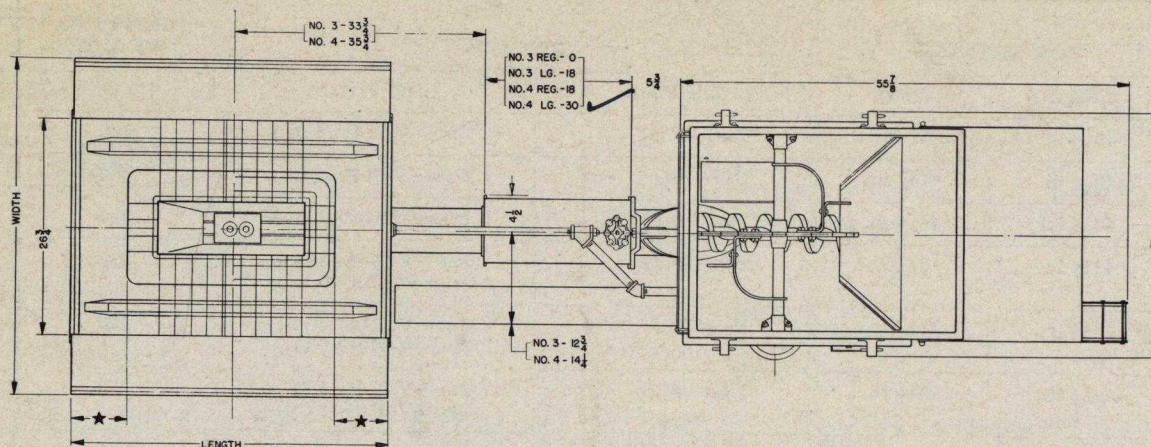
STOKER SIZE	LENGTH OF SETTING	WIDTH OF SETTING	DUMP GRATE SIZE Dimension A
No. 3 AD	45½ in.	38 in.	6⅛ in.
No. 3 AD	45½ in.	42 in.	8⅛ in.
No. 3 AD	45½ in.	46 in.	10⅛ in.
No. 4 AD	49½ in.	38 in.	6⅛ in.
No. 4 AD	49½ in.	42 in.	8⅛ in.
No. 4 AD	49½ in.	46 in.	10⅛ in.



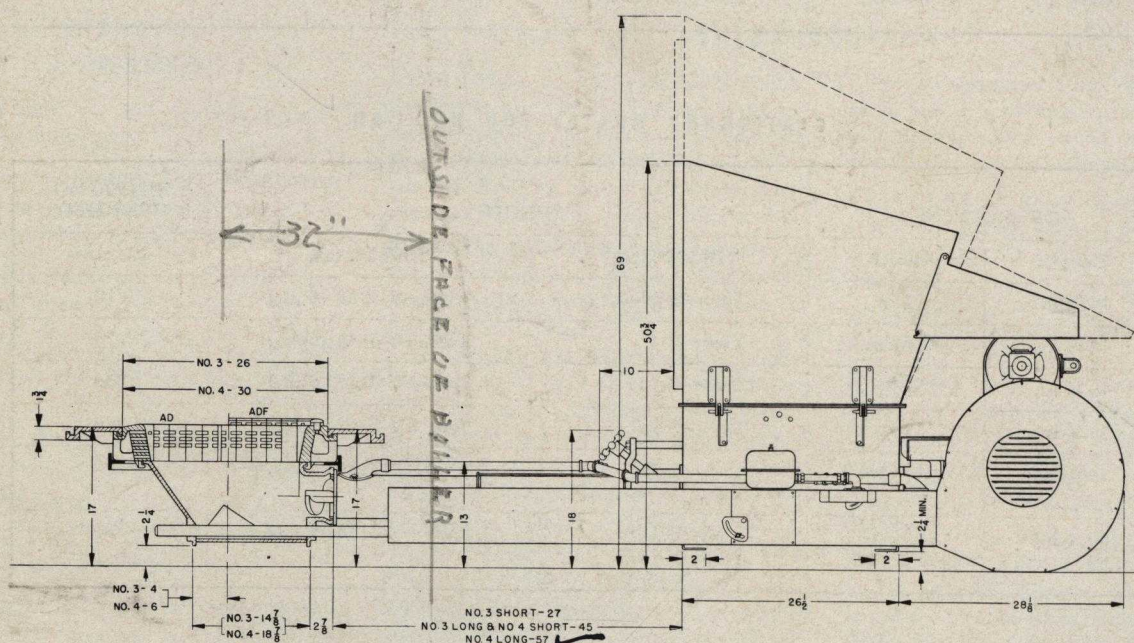
SERIES 32 POWERAM HOPPER MODELS



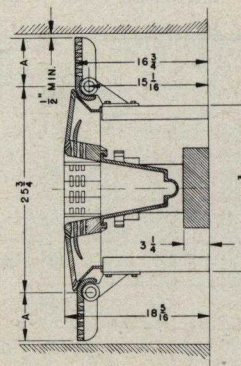
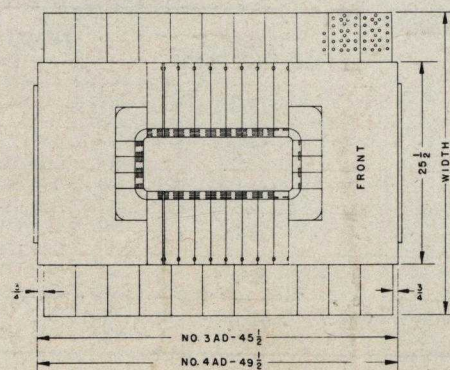
GENERAL DIMENSIONS



PLAN VIEW



ELEVATION VIEW



DUMP GRATES

SERIES 31 STANDARD HOPPER MODELS

STATIONARY GRATES FOR NO. 2

FOR SETTING:		SPECIFY:		SHIPPING WEIGHT
Length Inches	Width Inches	Side Plates	End Plates	4th class
*30 1/2	29	Two—S-23	Two—S 18 (3 in.)	140
*34 1/4	29	Two—S-1	One—S-18; One—S-19	170
*34 1/4	33	Two—S-10	One—S-18; One—S-19	210
37 1/4	29	Two—S-2	Two—S-19 (6 in.)	190
37 1/4	33	Two—S-11	Two—S-19 (6 in.)	240
40 1/4	33	Two—S-12	One—S-19; One—S-20	270
43 1/4	33	Two—S-13	Two—S-20 (9 in.)	290

*Use longer setting if possible.

STATIONARY GRATES FOR NO. 3

FOR SETTING:		SPECIFY:		SHIPPING WEIGHT
Length Inches	Width Inches	Side Plates	End Plates	4th class
*34 1/4	29	Two—S-1	Two—S-18 (3 in.)	160
*34 1/4	33	Two—S-10	Two—S-18 (3 in.)	200
*34 1/4	42	Four—S-1	Two—S-18 (3 in.)	290
*37 1/4	29	Two—S-2	One—S-18; One—S-19	180
*37 1/4	33	Two—S-11	One—S-18; One—S-19	230
*37 1/4	42	Four—S-2	One—S-18; One—S-19	320
40 1/4	29	Two—S-3	Two—S-19 (6 in.)	200
40 1/4	33	Two—S-12	Two—S-19 (6 in.)	260
40 1/4	42	Four—S-3	Two—S-19 (6 in.)	350
43 1/4	29	Two—S-4	One—S-19; One—S-20	220
43 1/4	33	Two—S-13	One—S-19; One—S-20	280
43 1/4	42	Four—S-4	One—S-19; One—S-20	380
46	31 1/2	Two—D-24MA	Two—S-20 (9 in.)	260
46	37 1/2	Two—D-25MA	Two—S-20 (9 in.)	340
46	42 1/2	Two—D-23MA Two—D-24MA	Two—S-20 (9 in.)	420

*Use longer setting if possible.

STATIONARY GRATES USED WITH TYPE "AD" OR "ADF" TUYERES

STOKER SIZE	FOR SETTING:		SPECIFY:		SHIPPING WEIGHT
	Length Inches	Width Inches	Side Plates	End Plates	
No. 2	37 1/4	41 3/4	Two—S-2	Two—V-3148; (6 in.)	250
No. 2	40 1/4	41 3/4	Two—S-3	One—V-3148; One—V-3166	280
No. 2	43 1/4	41 3/4	Two—S-4	Two—V-3166; (9 in.)	310
No. 3	40 1/4	41 3/4	Two—S-3	Two—V-3148; (6 in.)	260
No. 3	43 1/4	41 3/4	Two—S-4	One—V-3148; One—V-3166	290
No. 3	46 1/4	40	Two—D-23 MA	Two—V-3166; (9 in.)	310
No. 4	44 1/4	45 3/4	Two—S-4	Two—V-4953; (6 in.)	290
No. 4	47 1/4	44	Two—D-23 MA	One—V-4953; One—V-4954	310
No. 4	50 1/4	45 3/4	Two—S-5F Two—S-5M	Two—V-4954; (9 in.)	350

STATIONARY GRATES FOR NO. 4

FOR SETTING:		SPECIFY:		SHIPPING WEIGHT
Length Inches	Width Inches	Side Plates	End Plates	4th class
46	35 1/2	Two—D-24MA	Two—D-13; (6 in.)	250
46	41 1/2	Two—D-25MA	Two—D-13; (6 in.)	330
46	46 1/2	Two—D-23MA Two—D-24MA	Two—D-13; (6 in.)	410
46	50 1/2	Four—D-24MA	Two—D-13; (6 in.)	440
46	52 1/2	Two—D-23MA Two—D-25MA	Two—D-13; (6 in.)	490
52 1/2	35 1/2	Two—D-5F Two—D-5M	Two—D-27; (10 in.)	320
52 1/2	41 1/2	Two—D-9F Two—D-9M	Two—D-27; (10 in.)	430
52 1/2	46 1/2	Two—D-1F Two—D-1M Two—D-5F Two—D-5M	Two—D-27; (10 in.)	500
52 1/2	50 1/2	Four—D-5F Four—D-5M	Two—D-27; (10 in.)	555
52 1/2	52 1/2	Two—D-1F Two—D-1M Two—D-9F Two—D-9M	Two—D-27; (10 in.)	610
58 1/2	35 1/2	Two—D-6F Two—D-6M	One—D-14; (12 in.) One—D-21; (14 in.)	370
58 1/2	41 1/2	Two—D-10F Two—D-10M	One—D-14; (12 in.) One—D-21; (14 in.)	470
58 1/2	46 1/2	Two—D-2F Two—D-2M Two—D-6F Two—D-6M	One—D-14; (12 in.) One—D-21; (14 in.)	570
58 1/2	50 1/2	Four—D-6F Four—D-6M	One—D-14; (12 in.) One—D-21; (14 in.)	625
58 1/2	52 1/2	Two—D-2F Two—D-2M Two—D-10F Two—D-10M	One—D-14; (12 in.) One—D-21; (14 in.)	670

STEP TYPE GRATES

STOKER SIZE	FOR SETTING:		SPECIFY:		Shipping Weight 4th class
	Length Inches	Width Inches	Side Plates	End Plates	
No. 2	37 1/4	42	Two—S-2 Two—SS-2	Two—S-19; (6 in.)	370
No. 3	43 1/4	41 3/4	Two—S-4 Two—SS-4	One—S-19; (6 in.) One—S-20; (9 in.)	420
No. 4	58 1/2	52 1/2	Two—D-10F Two—D-10M Two—SD-2F Two—SD-2M	One—D-14; (12 in.) One—D-21; (14 in.)	705

DUMP GRATES

The following available settings are designed for use with an 18 inch front boiler wall. Other width walls will require special parts.

STOKER SIZE	LENGTH OF SETTING	WIDTH OF SETTING	DUMP GRATE SIZE Dimension A
No. 3	45 1/2 in.	38 in.	6 1/8 in.
No. 3	45 1/2 in.	42 in.	8 1/8 in.
No. 3	45 1/2 in.	46 in.	10 1/8 in.
No. 4	49 1/2 in.	42 in.	6 1/8 in.
No. 4	49 1/2 in.	46 in.	8 1/8 in.
No. 4	49 1/2 in.	50 in.	10 1/8 in.



SERIES 31 STANDARD HOPPER MODELS

